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ABSTRACT

This paper describes a program designed to identify and measure creativity in school children. Individual differences in age, intelligence, and personality; teacher and student behavior; and instructional materials and processes are considered. (DLG)

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SCHOOL RESEARCH

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Title of Project: Creativity

Carried out at: Department of Educational and Psychological Research, Malmö School of Education

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Principal Objectives

To construct, adapt and try out tests for the identification and measurement of creativity;
to study the relations of these tests to variations in age, intelligence and personality;
to study teacher and pupil behaviour having a potential influence on creativity;
to formulate recommendations as to methods and exemples of training material intended to promote creativity; and
to study certain effects of these.

Background

The part played by the school in the development of the personality is stressed in the aims of the syllabus. Pupils should be encouraged and trained to make their own combinations, to draw their own conclusions, to design and create on their own, to experiment and to discover, to suggest and plan their

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work and critically to assess the results of their work,-these are some of the recommendations made. As essential goals for the pupils' development are thus included training in independence, flexibility, sensitivity to problems and creative thought. The more technical terms autonomy and creativity sum up valuable ingredients in this connection.

There exists at present a considerable risk that these essential components of the aims of the school remain in the field of educational rhetoric and are not permitted to exercise adequate influence on the practical structure of education as well as not being included as essential components when various types of educational experiments are evaluated.

Among other things this may be due to the fact that measurement techniques in the fields of autonomy and creativity are still comparatively underdeveloped (not least when seen in relation to measurement techniques as applied to performance with regard to knowledge and intelligence). The general instructions as to methods given in the syllabus and the available material on training in the technique of study usually provide very little guidance as to the actions to be taken by individual teachers in these matters. There is some risk that a number of teachers in the field tend mainly to regard tendencies towards autonomy in the light of disciplinary problems and creativity as sometimes constituting lack of interest and inattention to school work. Valuable expressions, of autonomy and creativity are thereby rather suppressed than encouraged. Such a teacher, by reason of his misplaced zeal, can actually thwart important parts of the aims of the school (by establishing "an atmosphere inimical to creativity", etc.).

Unfortunately research in this field has long been grossly neglected, not only in Sweden but also in the international sphere. Nevertheless in recent years increased activity has become apparent, not least in the USA, where special research institutes have been established and where a scientific journal

exclusively concentrated on "creative behaviour" has been started. It has therefore been possible to associate this project directly with certain international experience.

Execution

Since the field of activities associated with creativity is not only comparatively little studied but also contains what are obviously several extremely difficult problems, it is evident that we must not expect to obtain easily definite results and final products following the performance of a series of research operations planned in advance. What the project can rather aspire to is to increase **somewhat** our knowledge of the target areas referred to above by means of a series of methodical investigations and exemplificatory preliminary constructions in association therewith:

1) Experimental construction and trying out of various group tests for the identification and measuring of creativity (and autonomy) in children attending school. Various studies of scoring techniques will be included.

2) Application of the main tests at the same time as batteries of personality tests and cognitive tests in order to get a better understanding of the relational fertility of the main variables.

3) Exploratory studies by means of questionnaires and observations to study teacher and pupil behaviour having a potential influence on creativity.

4) Working out sample student exercises intended to encourage tendencies towards creative behaviour.

5) The study of the ways in which these materials are experienced by pupils and teachers and any effects they may have.

Hitherto work has mainly been concentrated on points 1) - 4). The rest of the project will be devoted to point 5) as well as

to further processing and reporting.

Examples of Subdivisions of the Project

Analysis of Literature. A preliminary servey of empirical investigations carried out in recent years indicates that attention has chiefly been concentrated on connections between creativity, intelligence and personality characteristics. Considerably less investigation has been performed with direct relevance to the planning of teaching (e.g. studies of training programmes associated with school situations).

A Pupil Study. An initial collection of data referring to about 450 pupils from grades 4, 6 and 8 in Malmö has been carried out. The primary aim was 1) to try out some creativity and autonomy tests (including both material adapted to Swedish conditions as well as freshly constructed material), 2) to explore special variable relations (to test certain preliminary hypotheses on connections between creativity, autonomy and cognitive flexibility). The material collected should also be able to provide some information on 3) developmental trends in creative behaviour and about 4) possible personality correlates to low-creativity and high-creativity respectively on the one hand and low-autonomy and high-autonomy respectively on the other.

The investigation was organised in such a way that the creativity test and an intelligence test were given to all three groups (grades 4, 6 and 8) (including, beside the creativity and intelligence tests, tests of autonomy, general personality, verbal command and cognitive flexibility) was performed in grade 8 only.

The following list of tests may given some idea of the variables of interest to us: 1) Verbal creativity test, Torrance; 2) Non-verbal creativity test, Torrance; 3) Different ways of completing sentences; 4) Lies; 5) Intelligence test (Cattell 2 B); 6) Hidden

figures; 7) Sorting; 8) Coding; 9) Similarities; 10) Word fluency; 11) Swedish language; 12) Personality test I (HSPQ:B); 13) Personality test II (MNT); 14) Autonomy test: Personal views, Version C (a simplified version of a test previously used for adults); 15) Sociometric choice situation (including some questions related to autonomy); 16) Teacher ratings of independence.

The processing of the collected data, including a factor analysis, will be the subject of a separate report.

Collection of Expert Opinions. In order to ascertain how educational experts (principals, further educational advisers, tutors, lecturers in methodology, etc.) regard the term "creative ability" and what they think about the steps that should be taken at school to encourage creative behaviour, a questionnaire was drawn up and answered by about 300 people. A second questionnaire was prepared as a followup of some of the points of view that emerged. The second questionnaire was completed by about 350 people. To discover how teachers react to creative expression about 200 teachers were confronted in the form of a test with a number of specific classroom situations. The results of these subordinate investigations have been compiled and reported (Eriksson, 1970). - The results of the questionnaires indicate that there is a relatively high degree of internal agreement in the teachers' assessment of the working methods and activities at school that are of special importance from the point of view of creativity. It is equally apparent, however, that the teachers feel an obvious need of instruction on methods, quides for teachers and special material for pupils. A clearly expressed wish on the part of the teachers for more instructions and more material for practice in combination with a certain degree of consensus among teachers as to how activities designed to foster creativity should be organised provide proposals and guiding principles for further work of development.

An Observation Study. An investigation comprising observation

studies of classroom interaction has been carried out in the case of 23 forms in the intermediate stage of the comprehensive school. One of the major aims of these studies was to test an observation schedule including categories which may be assumed to be related to creative instruction. Two observers assessed throughout the same teaching situations. Dimension analyses and other technical studies are in progress. In the course of the same investigation series test data on pupils included in the observation studies was collected, among other things in order to study, if possible, the relationshop between observed interactions and the pupils' creative status. At the same time it is also possible to obtain a preliminary survey of the actual occurrence of the dimensions included in the schedule.

Constructing and Trying out Material. To a considerable extent the Spring Term of 1971 was devoted to the work of construction and other preparations for an investigation designed to test material which is planned to take place early in the Autumn Term of 1971. Previous attempts to encourage creativity by means of practice material have generally been associated only to a limited degree with the actual work of the people taking part in the tests or their studies and have not been seldom been of extremely brief duration; possibly these are some of the reasons why the results have often been unsatisfactory. Is it possible to work out exercises designed to foster creativity in close association with material included in regular instruction according to the curriculum? If so, how would pupils and teachers react to such exercises? Can any measurable effects be demonstrated? These were some of the starting questions posed and against this background an investigation plan was drawn up, in accordance with which potentially creativity-promoting exercises should be devised in close association with the material of the three "heavy" subjects Swedish, mathematics and orientation subjects. It was decided to design the material and tests for grade 5, among other things with the motivation that the pupils of that year are sufficiently versed in reading and writing to take on an advanced test programme and at the same time still probably susceptible to influence with regard to creativity.

Six interested teachers were appointed to construct suitable material, two for each of the three subjects. The material was constructed individually or in pairs and subsequently discussed at general meetings.

The investigations will consist of a battery of preliminary tests at the beginning of the Autumn Term, a period of teaching including the exercises developed, and afterwards a battery of final tests. Certain classes will undergo experimental activities in all three subject; furthermore, some control classes will only take the tests. It is planned that the test battery will comprise general creativity tests, creativity tests in connection with school subjects, tests of knowledge, and certain other more general instruments of cognitive type or related to the personality.

The staff engaged on the project do not deem it likely that an initial experiment in such an untried and difficult field will immediately result in optimum material producing measurable effects in the desired direction. On the other hand we hope to gain some preliminary experience and to obtain detailed points of view from teachers and pupils which should provide a considerably firmer basis for making recommendations as to methods and for future development work. Following minor revisions it should prove possible to produce some prototype materials.

Information. A summary of the project in English is included in Educational and Psychological Interactions; a report in German is to be found in Didakometrie und Soziometrie (Bjerstedt, 1971 a, 1971 b). Some questions of methods closely associated with the project are briefly touched on in Bjerstedt, 1969. Results of the project will be successively presented in Pedagogisk-psykologiska problem (Eriksson, 1970). During the Autumn Term of 1970 the leader of the project arranged a course for candidates for the doctorate on the theme "Creativity and control in the research process". Some of the material provided by guest lecturers and students of the course will be issued in the form

of a report (Bjerstedt, 1971 c).

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